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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,285	01/02/2002	Alfred Bubik	P21775	7957

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EXAMINER

HUG, ERIC J

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/019,285

Applicant(s)

BUBIK ET AL.

Examiner

Eric Hug

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 70-82 is/are allowed.
- 6) ☒ Claim(s) 28-69 and 83 is/are rejected.
- 7) ☒ Claim(s) 56 and 84 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 56 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. Claim 56 is objected to because it is already stated in independent claim 28 that the two wires run over a lower vertex of the first deflection roll.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 55-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 55, the limitation "after said second deflection device, said second endless wire is substantially horizontally guided" contradicts the limitation given by independent claim 28 "after said second deflection device, said second endless wire carrying the forming web is arranged to run downward at an angle to the horizontal reference".

Claims 56-58 depend on claim 55.

Regarding claims 59 and 60, the claimed sheet forming device that is located after the second deflection device runs horizontally, and thus contradicts the limitation in claim 28 of

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"after said second deflection device, said second endless wire carrying the forming web is arranged to run downward at an angle to the horizontal reference".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 28-54 and 61-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halmschlager (EP 0 933 473) in view of Bubik et al (US 4,417,950), Kankaanpaa (US 4,406,739), and Armstrong et al (US 4,425,187). NOTE: Patent family member US 6,267,846 provided by the Applicant was used as the English translation equivalent for EP 0 933 473.

Halmschlager discloses a twin-wire former for a fibrous web comprising two endless wire belts (11, 12) defining two closed loop sections, a rotating dewatering element (30) within the first section (the section defined by wire 11) whereby the two wires are arranged to form an inlet gap (28) and arranged to run together over a portion of the rotating dewatering element, an obliquely arranged flowbox (26) at the gap inlet (relative to the horizontal), a forming fibrous web located between the two wires, a second dewatering element (36) within the second section (defined by wire 12), an oblique downward run (relative to vertical) of the two wires over the second dewatering element, a first deflection device (42) whereby the two wires run under the lower vertex, a region after the first deflection device where the two wires separate, a web

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separating device (15, 37) in the vicinity of where the two wires separate so that the web follows the lower wire, and a second deflection device (33) where the lower wire runs over the upper vertex and then in a downward direction. After separation of the wires, the upper wire travels in an upward direction and then back towards the inlet gap. The difference between the twin-wire former of Halmschlager and that of the present invention is that in Halmschlager the two wires are arranged horizontally between two deflection rolls rather than being arranged to run at an upward angle, with the upper vertex of the second deflection roll being located higher than the lower vertex of the first deflection roll. In Halmschlager, the upper vertex of the second deflection roll is at about the same level as the lower vertex of the first deflection roll.

Bubik discloses a twin-wire machine having many of features of the machine of Halmschlager. Particularly in Figure 5, the twin-wire machine has two endless wires that form a gap, a stock inlet (10), a dewatering device (5) within one wire loop, a second dewatering device (22) within the other wire loop, an oblique run of the two wires over the second dewatering device, deflection devices (13, 14), and a separating device (30'). Unlike Halmschlager, after the first deflection roll, the two wires are directed at an upward angle rather than horizontally. After the two wires separate, the upper wire travels upwards and back to the gap inlet. The bottom wire and web travel over the second deflection device and then downward to a web transfer point. The upper vertex of the second deflection device is well above the lower vertex of the first deflection device. One advantage of having an upwardly takeoff of the two wires from the first deflection device (arising from the relative positions of the two deflection devices) is that there is an increased wrap-around angle at both deflection devices. Large wrap around angles are favorable for increased dewatering action at the first deflection device due to centrifugal

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action. Having a large wrap-around angle at the second deflection device ensures good web adhesion to the lower wire.

Kankaanpaa and Armstrong et al are provided as additional evidence of the desirability of having the wires ascend from a first deflection device. In Figure 2 of Kankaanpaa, the first deflection device (guide roll 23) is positioned so that its center is at the same level as the center of the second deflection device (suction roll 24), thus providing the ascending run. The vertical positions of rolls 23 and 24 can be adjusted as necessary to influence the length of the wires about them and correspondingly adjust the time for dewatering (see column 6, lines 1-30). In Figure 3 of Armstrong, the wires are guided about deflection roll 37 at a large wrap angle. A suction box 21 is disposed between deflection rolls to ensure the web follows the lower wire (see column 6, lines 33-47).

Therefore, regarding claims 28 and 83, at the time of the invention, it would have been obvious to one skilled in the art to position the deflection rolls of Halmschlager in a manner whereby the lower vertex of the first deflection device is lower than the upper vertex of the second deflection device, so that the two wires are directed upwardly from the first deflection roll, thereby resulting in increased dewatering from the large wrap angle about the first deflection device.

The following dependent claims are unpatentable, because they include features taught or suggested by the above references or disclosed by Applicant as known prior art features, or because they claim adjustable parameters known by one skilled in the art to be optimized on a twin-wire paper machine. For the latter, the courts have determined that the discovery of an

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optimum value of a known result effective variable without producing any new or unexpected results is within the skill of the routineer in the art, *In re Boesch*, 205 USPQ 215 (CCPA 1980):

Claims 29-31, 62, 63: The relative locations of upper and lower vertices are suggested by Kankaanpaa, thus are considered optimizable variables.

Claim 32-33, 52-54: The angle of downward run after second deflection device is clearly shown by all the references.

Claim 34: The machines described in the above references are all paper machines.

Claims 35, 64: The first dewatering device in Halmschlager (30) is a rotating forming roll.

Claims 36-38, 42: Diameters of forming rolls and the structure of forming rolls are well known as disclosed by Applicant. Halmschlager teaches the honeycomb structure.

Claims 39-40: The dewatering capacity of forming roll is an optimizable variable.

Claims 41, 43: The forming roll of Halmschlager is an open suction roll.

Claim 44: The second dewatering device of Halmschlager (36) has a plurality of drainage strips.

Claim 45: The angle of the oblique downward run of the two wires is clearly within the claimed range.

Claims 46-51, 61: These type of dewatering and suction elements are known in the prior art as disclosed by Applicant.

Claims 65: Halmschlager (and others) discloses the claimed separating device.

Claim 66, 67: Bubik shows that the first deflection roll is larger in diameter than the second deflection roll, and that the second deflection roll is a suction roll.

Claims 68, 69: The overall height of the former is a result of the location of the two deflection devices, thus are considered optimizable variables.

Allowable Subject Matter

Claims 70-82 are allowed.

Claim 84 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose or suggest the present twin-wire arrangement and press section, whereby the pickup point for the press section is disposed above the lower vertex of the first deflection roll and whereby the press section comprises first and second rolls arranged to form a first nip, a third roll arranged to form a second nip, and a fourth roll arranged to form a single-sided felted third press nip. In the prior art teachings of twin-wire machines with an arrangement of first and second deflection rolls, an ascending wire run therebetween, and a press section thereafter, there is no express teaching of the location of the pickup point relative to the location of the lower vertex of the first deflection device, although it may be deduced from Armstrong that the pickup point is higher. Nevertheless, there is no suggestion by the prior art pertaining to location of the pickup point for a three-nip press section as described in the claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. NOTE: The following references all disclose an ascending wire take-off after a first deflection roll.

Kobayashi (US 3,951,736) discloses vertically oriented S-shaped twin-wire machine that comprises a lower turning (deflection) device (6) and a separating device (14) prior to the press section.

Moody (US 3,844,881) discloses a twin-wire machine having two deflection suction rolls (30, 56), an ascending wire run and a separating device between them, and a downward run for the lower wire after the second roll.

Stenberg et al (US 4,209,360) discloses in Figures 7 and 8 a twin-wire machine having a downward run after the forming roll, two deflection rolls, and an ascending wire run therebetween.

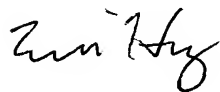
Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on May 2, 2000 (100 21 320.0). It is noted, however, that a copy of the certified copy of the foreign application has not been received in this application from the International Bureau (PCT Rule 17.2(a)).

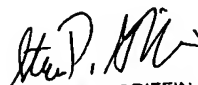
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 703 308-1980. The examiner can normally be reached on Monday through Friday, 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0651.



jeh
May 5, 2003



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